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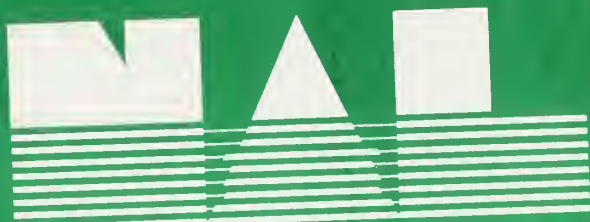
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**UNITED STATES
STANDARDS**
for grades of
TOMATO PASTE



EFFECTIVE FEBRUARY 25, 1970

Second Issue
As Amended

These standards supersede the standards
which have been in effect since
August 22, 1964



This is the second issue of the United States Standards for Grades of Tomato Paste.

These standards were published in the Federal Register of July 22, 1964 (29 F.R. 9836), to become effective on August 22, 1964. They were amended on February 25, 1970 (35 F.R. 3651) to conform to revised Food and Drug definitions and standards. An unofficial reprint of the Food and Drug Definitions and Standards for Tomato Paste (2) CFR Part 53) is included.

This grade standard is issued under authority of the Agricultural Marketing Act of 1946, which provides for the issuance of official U. S. grades to designate different levels of quality for the voluntary use of producers, buyers, and consumers. Official grading service is also provided under this Act, upon request of the applicant, and upon payment of a fee to cover the cost of the service.

As is the case of other standards for processed fruits and vegetables, these standards are designed to serve as a convenient basis for sales, for establishing quality control programs, and for determining loan values. They will also serve as a basis for the inspection of this commodity by Federal inspection service, which is available for the inspection of other processed products as well.

These standards are issued by the Department after careful consideration of all data and views submitted and the Department welcomes suggestions which might aid in improving these standards in future revisions. Comments may be submitted to, and copies of these standards obtained from:

Chief, Processed Products Standardization and Inspection Branch
Fruit and Vegetable Division, AMS
U. S. Department of Agriculture
Washington, D. C. 20250

UNITED STATES STANDARDS FOR GRADES OF TOMATO PASTE¹

Effective February 25, 1970

PRODUCT DESCRIPTION, CONCENTRATION, TEXTURE, GRADES

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AUTHORITY: The provisions of this subpart issued under secs. 202-208, 60 Stat. 1087, as amended; 7 U.S.C. 1621-1627.

PRODUCT DESCRIPTION, CONCENTRATION, TEXTURE, GRADES

§ 52.5041 Product description.

(a) "Tomato Paste" is the clean, sound wholesome product as defined in the Standard of Identity for Tomato Paste (21 CFR 53.30) issued pursuant to the Federal Food, Drug, and Cosmetic Act and contains not less than 24 percent of natural tomato soluble solids.

(b) The standards in this subpart cover canned tomato paste processed by heat to assure preservation in hermetically sealed containers as well as tomato paste which may be preserved by other means.

¹ Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act or with applicable state laws and regulations.

§ 52.5042 Concentration.

The degree of concentration is not considered a factor of quality for the purposes of these standards but the following designations of concentration may be used in connection with these standards for the applicable natural tomato soluble solids group:

NATURAL TOMATO SOLUBLE SOLIDS

Extra heavy concentration.	39.3 percent or more.
Heavy concentration--	32 percent or more, but less than 39.3 percent.
Medium concentration.	28 percent or more, but less than 32 percent.
Light concentration--	24 percent or more, but less than 28 percent.

§ 52.5043 Texture.

(a) *General.* Texture is the degree of fineness or coarseness of the product. Texture is classified when the product is diluted with water to between 8 percent and 9 percent, inclusive, of natural tomato soluble solids.

(b) *Kinds of texture.* (1) "Fine" texture means a smooth, uniform finish.

(2) "Coarse" texture means a coarse, slightly granular finish.

§ 52.5044 Grades.

(a) "U.S. Grade A" (or "U.S. Fancy") is the quality of tomato paste that (1) has a good flavor and odor, (2) has a good color, (3) is practically free from defects, and (4) scores not less than 90 points when scored in accordance with the scoring system outlined in this subpart.

(b) "U.S. Grade C" (or "U.S. Standard") is the quality of tomato paste that (1) has at least a fairly good flavor and odor, (2) has at least a fairly good color, (3) is at least fairly free from defects, and (4) scores not less than 80 points when scored in accordance with the scoring system outlined in this subpart.

(c) "Substandard" is the grade of tomato paste that fails to meet the requirements of "U.S. Grade C."

FILL OF CONTAINER

§ 52.5045 Recommended fill of container.

It is recommended that containers of tomato paste be filled as full as practicable without impairment of quality.

FACTORS OF QUALITY

§ 52.5046 Ascertaining the grade of a sample unit.

(a) *General*. The grade of a sample unit of tomato paste is ascertained by considering the factor of flavor and odor which is not scored, the ratings for the factors of color and defects which are scored, the total score, and the limiting rules which apply.

(b) *Factors not rated by score points—*

(1) *Flavor and odor*. (i) The flavor and odor of the product is determined on undiluted samples and also after dilution with water to between 8 percent and 9 percent, inclusive, of natural tomato soluble solids.

(ii) "Good flavor and odor" means a distinct tomato paste flavor characteristic of ripe, good quality tomatoes and inclusive of any optional ingredient which may have been added. Such flavor and odor may be no more than slightly affected, by any one or combination of the following: stems, sepals, leaves, crushed seeds, cores; by immature, soured, or overripe tomatoes; from the effects of unsatisfactory preparation, processing, or storage; or from any other factor not specifically mentioned.

(iii) "Fairly good flavor and odor" means a characteristic tomato paste flavor and inclusive of any optional ingredient which may have been added. Such flavor and odor may be affected, but not to a serious degree, by any one or combination of the following: stems, sepals, leaves, crushed seeds, cores; by immature, soured, or overripe tomatoes; from the effects of unsatisfactory preparation, processing, or storage; or from any other factor not specifically mentioned.

(iv) "Off flavor and odor" means tomato paste flavor that fails to meet the requirements of "fairly good flavor and odor" or which possesses a flavor and/or odor which is seriously objectionable.

(c) *Factors rated by score points*. The relative importance of each scoring factor is expressed numerically on the scale of 100. The maximum number of points that may be given each factor is:

<i>Factors</i>	<i>Points</i>
Color	50
Defects	50
Total score	100

§ 52.5047 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained numerically. The numerical range within each factor is inclusive. (For example, "45 to 50 points" means 45, 46, 47, 48, 49 or 50 points.)

§ 52.5048 Color.

(a) *General*. The amount of red in tomato paste is determined by comparing the color or the product, diluted with water to between 8 percent and 9 percent, inclusive, of natural tomato soluble solids, with that produced by spinning a combination of the following Munsell color discs:

- Disc 1—Red (5R 2.6/13) (glossy finish).
- Disc 2—Yellow (2.5YR 5/12) (glossy finish).
- Disc 3—Black (N1) (glossy finish).
- Disc 4—Grey (N4) (mat finish).

Such comparison is made under a diffused light source of approximately 250 foot-candle (candela) intensity and having a spectral quality approximating that of daylight under a moderately overcast sky, and a color temperature of 7,500° Kelvin $\pm 200^\circ$. With the light source directly over the disc and diluted product, observation is made at an angle of 45° and at a distance of 12 or more inches from the product.

(b) *Availability of color references*. The colors referred to in this section are available from the approved supplier under a license from the U.S. Department of Agriculture:

Munsell Color Co., 2441 North Calvert Street,
Baltimore, Md. 21218.

(c) *Grade A Classification.* Tomato paste that has a good color may be given a score of 45 to 50 points. "Good color" means a bright, typical, red tomato paste color. Such color, when the product is diluted and observed as specified in this section, is as red as, or more red than, that produced by spinning the specified Munsell color discs in the following combinations or an equivalent of such composite color:

65 percent of the area of Disc 1;
21 percent of the area of Disc 2; and
14 percent of the area of either Disc 3 or Disc 4; or
7 percent of the area of Disc 3 and 7 percent of the area of Disc 4, whichever most nearly matches the appearance of the diluted sample.

(d) *Grade C Classification.* Tomato paste that has at least a fairly good color may be given a score of 40 to 44 points. Tomato paste that falls into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule). "Fairly good color" means a typical red tomato paste color which may be slightly dull or may have a slightly brownish cast. Such color, when the product is diluted and observed as specified in this section, is as red as, or more red than, that produced by spinning the specified Munsell color discs in the following combinations or an equivalent of such composite color:

53 percent of the area of Disc 1;
28 percent of the area of Disc 2; and
19 percent of the area of either Disc 3 or Disc 4; or
9½ percent of the area of Disc 3 and 9½ percent of the area of Disc 4, whichever most nearly matches the appearance of the diluted sample.

(e) *Substandard Classification.* Tomato paste that fails to meet the requirements of paragraph (d) of this section may be given a score of 0 to 39 points and shall not be graded above Substandard,

regardless of the total score for the product (this is a limiting rule).

§ 52.5049 Defects.

(a) *General.* This factor is concerned with the degree of freedom from defects such as dark specks or scale-like particles, seeds or objectionable particles of seeds, objectionable tomato peel, harmless extraneous material, or any other similar substances.

(b) *Grade A Classification.* Tomato paste that is practically free from defects may be given a score of 45 to 50 points. "Practically free from defects" means that any defects present do not more than slightly affect the appearance or usability of the product.

(c) *Grade C Classification.* Tomato paste that is fairly free from defects may be given a score of 40 to 44 points. Tomato paste that falls into this classification shall not be graded above U.S. Grade C, regardless of the total score of the product (this is a limiting rule). "Fairly free from defects" means that any defects present may be noticeable but are not so large, so numerous, nor of such contrasting color or nature as to seriously affect the appearance or usability of the product.

(d) *Substandard Classification.* Tomato paste that fails to meet the requirements of paragraph (c) of this section may be given a score of 0 to 39 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

LOT COMPLIANCE

§ 52.5050 Ascertaining the grade of a lot.

The grade of a lot of tomato paste covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products (sections 52.1 to 52.87).

SCORE SHEET

§ 52.5051 Score sheet for tomato paste.

Size and kind of container.....
 Label.....
 Container mark or identification.....
 Net weight.....
 Vacuum (inches).....
 Texture (fine or coarse).....
 Natural tomato soluble solids (percent).....

Factors	Score points
Color.....	50 { (A) 45-50 (C) 1 40-44 (SStd) 1 0-39
Defects.....	50 { (A) 45-50 (C) 1 40-44 (SStd) 1 0-39
Total score.....	100
Flavor and odor.....	{ Good Fairly Good Off
Grade.....	

1 Indicates limiting rule.

The U.S. Standards for grades as hereby amended shall become effective on the date of publication in the FEDERAL REGISTER and thereupon will supersede:

U.S. Standards for Grades of Tomato Paste which have been in effect since August 22, 1964; and

(Sec. 205, 60 Stat. 1090, as amended, 7 U.S.C. 1624)

Dated: February 17, 1970.

G. R. GRANGE,
 Deputy Administrator,
 Marketing Services.

Published in the Federal Register of July 22, 1964 (29 F.R. 9836)

Amended, Federal Register February 25, 1970 (35 F.R. 3651)

EXCERPT FROM TITLE 21 - FOOD AND DRUGS

CHAPTER 1 - FOOD AND DRUG ADMINISTRATION, DEPARTMENT OF HEALTH, EDUCATION

Part 53 - Tomato Products; Definitions and Standards of Identity; Quality; and Fill of Container

§ 53.30 Tomato paste; identity; label statement of optional ingredients.

(a) Tomato paste is the food prepared from one or any combination of two or all of the following optional ingredients:

(1) The liquid obtained from mature tomatoes of red or reddish varieties.

(2) The liquid obtained from the residue from preparing such tomatoes for canning, consisting of peelings and cores with or without such tomatoes or pieces thereof.

(3) The liquid obtained from the residue from partial extraction of juice from such tomatoes.

Such liquid is obtained by so straining such tomatoes or residue, with or without heating, as to exclude skins, seeds, and other coarse or hard substances. It is concentrated, and may be seasoned with one or more of the optional ingredients:

(4) Salt.

(5) Spice.

(6) Flavoring.

It may contain, in such quantity as neutralizes a part of the tomato acids, the optional ingredient:

(7) Baking soda.

When sealed in a container it is so processed by heat, before or after sealing, as to prevent spoilage. It contains not less than 24.0 percent of natural tomato soluble solids as determined by the following method: ¹ Determine the refractive index of the clear serum obtained from the product, corrected for temperature, converting the resultant index to "% Sucrose" in accordance with the "International Scale of Refractive Indices of Sucrose at 20° C.," pages 828-30, Reference Tables 43.008 and 43.009 of the book "Official Methods of Analysis of the Association of Official Agricultural Chemists," 10th edition, 1965. If no salt has been added, this percent sucrose from the reference table shall be considered the percent of natural tomato soluble solids. If salt has been added, determine the percent of sodium chloride by the method prescribed on page 519, section 30.009, under "Sodium Chloride-Official," of said book. Subtract the percent of sodium

chloride found from the percent of total soluble solids found and multiply the difference by 1.016. The product shall be considered the percent of natural tomato soluble solids.

(b) When optional ingredient specified in paragraph (a) (2) of this section is present, in whole or in part, the label shall bear the statement "Made From _____" (or "Made in Part From _____," as the case may be) "Residual Tomato Material From Canning." When optional ingredient specified in paragraph (a) (3) of this section is present, in whole or in part, the label shall bear the statement "Made From _____," (or "Made in Part From _____," as the case may be) "Residual Tomato Material From Partial Extraction of Juice." If both such ingredients are present, such statements may be combined in the statement "Made From _____" (or "Made in Part From _____," as the case may be) "Residual Tomato Material From Canning and From Partial Extraction of Juice." When optional ingredient specified in paragraph (a) (5) or (6) of this section is present the label shall bear the statement or statements, "Spice Added" or "With Added Spice," "Flavoring Added" or "With Added Flavoring," as the case may be. When optional ingredient specified in paragraph (a) (7) of this section is present, the label shall bear the statement "Baking Soda Added." If two or all of the optional ingredients specified in paragraph (a) (5), (6), and (7), of this section are present, such statements may be combined, as for example, "Spice, Flavoring, and Baking Soda Added." In lieu of the word "Spice" or "Flavoring" in such statement or statements, the common or usual name of such spice or flavoring may be used.

(c) Wherever the name "Tomato Paste" appears on the label so conspicuously as to be easily seen under customary conditions of purchase, the statement or statements specified in this section, showing the optional ingredients present shall immediately and conspicuously precede or follow such name, without intervening written, printed, or graphic matter.

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